

**CLAIMS****WHAT IS CLAIMED IS:**

1. An isolated nucleic acid molecule comprising a polynucleotide having a nucleotide sequence at least 95.0% identical to a sequence selected from the group consisting of:
  - 5 (a) a polynucleotide fragment of SEQ ID NO:1 or a polynucleotide fragment of the cDNA sequence included in ATCC Deposit No: PTA-3161, which is hybridizable to SEQ ID NO:1;
  - (b) a polynucleotide encoding a polypeptide fragment of SEQ ID NO:2 or a polypeptide fragment encoded by the cDNA sequence included in ATCC Deposit No: 10 PTA-3161, which is hybridizable to SEQ ID NO:1;
  - (c) a polynucleotide encoding a polypeptide domain of SEQ ID NO:2 or a polypeptide domain encoded by the cDNA sequence included in ATCC Deposit No: PTA-3161, which is hybridizable to SEQ ID NO:1;
  - 15 (d) a polynucleotide encoding a polypeptide epitope of SEQ ID NO:2 or a polypeptide epitope encoded by the cDNA sequence included in ATCC Deposit No: PTA-3161, which is hybridizable to SEQ ID NO:1;
  - (e) a polynucleotide encoding a polypeptide of SEQ ID NO:2 or the cDNA sequence included in ATCC Deposit No: PTA-3161, which is hybridizable to SEQ ID NO:1, having G-protein coupled receptor activity;
  - 20 (f) a polynucleotide which is a variant of SEQ ID NO:1;
  - (g) a polynucleotide which is an allelic variant of SEQ ID NO:1;
  - (h) an isolated polynucleotide comprising nucleotides 460 to 1482 of SEQ ID NO:1, wherein said nucleotides encode a polypeptide corresponding to amino acids 2 to 342 of SEQ ID NO:2 minus the start codon;
  - 25 (i) an isolated polynucleotide comprising nucleotides 457 to 1482 of SEQ ID NO:1, wherein said nucleotides encode a polypeptide corresponding to amino acids 1 to 342 of SEQ ID NO:2 including the start codon;
  - (j) a polynucleotide which represents the complimentary sequence (antisense) of SEQ ID NO:1; and
  - 30 (k) a polynucleotide capable of hybridizing under stringent conditions to any one of the polynucleotides specified in (a)-(j), wherein said polynucleotide does not

hybridize under stringent conditions to a nucleic acid molecule having a nucleotide sequence of only A residues or of only T residues.

2. The isolated nucleic acid molecule of claim 1, wherein the polynucleotide fragment comprises a nucleotide sequence encoding a human G-protein coupled receptor protein.
3. A recombinant vector comprising the isolated nucleic acid molecule of claim 1.
4. A recombinant host cell comprising the vector sequences of claim 3.
5. An isolated polypeptide comprising an amino acid sequence at least 10 95.0% identical to a sequence selected from the group consisting of:
  - (a) a polypeptide fragment of SEQ ID NO:2 or the encoded sequence included in ATCC Deposit No: PTA-3161;
  - (b) a polypeptide fragment of SEQ ID NO:2 or the encoded sequence included in ATCC Deposit No: PTA-3161, having G-protein coupled receptor activity;
  - 15 (c) a polypeptide domain of SEQ ID NO:2 or the encoded sequence included in ATCC Deposit No: PTA-3161;
  - (d) a polypeptide epitope of SEQ ID NO:2 or the encoded sequence included in ATCC Deposit No: PTA-3161;
  - (e) a full length protein of SEQ ID NO:2 or the encoded sequence included in 20 ATCC Deposit No: PTA-3161;
  - (f) a variant of SEQ ID NO:2;
  - (g) an allelic variant of SEQ ID NO:2;
  - (h) a species homologue of SEQ ID NO:2;
  - (i) a polypeptide comprising amino acids 2 to 342 of SEQ ID NO:2, wherein 25 said amino acids 2 to 342 comprise a polypeptide of SEQ ID NO:2 minus the start methionine;
  - (j) a polypeptide comprising amino acids 1 to 342 of SEQ ID NO:2; and
  - (k) a polypeptide encoded by the cDNA contained in ATCC Deposit No. 30 PTA-3161.
6. The isolated polypeptide of claim 5, wherein the full length protein comprises sequential amino acid deletions from either the C-terminus or the N-terminus.

7. An isolated antibody that binds specifically to the isolated polypeptide of claim 5.
8. A recombinant host cell that expresses the isolated polypeptide of claim 5.
- 5 9. A method of making an isolated polypeptide comprising:
  - (a) culturing the recombinant host cell of claim 8 under conditions such that said polypeptide is expressed; and
  - (b) recovering said polypeptide.
- 10 10. The polypeptide produced by claim 9.
11. A method for preventing, treating, or ameliorating a medical condition, comprising the step of administering to a mammalian subject a therapeutically effective amount of the polypeptide of claim 5 or the polynucleotide of claim 1.
12. A method of diagnosing a pathological condition or a susceptibility to a pathological condition in a subject comprising:
  - (a) determining the presence or absence of a mutation in the polynucleotide of claim 1; and
  - (b) diagnosing a pathological condition or a susceptibility to a pathological condition based on the presence or absence of said mutation.
13. A method of diagnosing a pathological condition or a susceptibility to a pathological condition in a subject comprising:
  - (a) determining the presence or amount of expression of the polypeptide of claim 5 in a biological sample; and
  - (b) diagnosing a pathological condition or a susceptibility to a pathological condition based on the presence or amount of expression of the polypeptide.
- 25 14. An isolated nucleic acid molecule consisting of a polynucleotide having a nucleotide sequence selected from the group consisting of:
  - (a) a polynucleotide encoding a polypeptide of SEQ ID NO:2;
  - (b) an isolated polynucleotide consisting of nucleotides 460 to 1482 of SEQ ID NO:1, wherein said nucleotides encode a polypeptide corresponding to amino acids 2 to 342 of SEQ ID NO:2 minus the start codon;

(c) an isolated polynucleotide consisting of nucleotides 457 to 1482 of SEQ ID NO:1, wherein said nucleotides encode a polypeptide corresponding to amino acids 2 to 342 of SEQ ID NO:2 including the start codon;

- 5 (d) a polynucleotide encoding the HGPRBMY27 polypeptide encoded by the cDNA clone contained in ATCC Deposit No. PTA-3161; and  
(e) a polynucleotide which represents the complimentary sequence (antisense) of SEQ ID NO:41.

15. The isolated nucleic acid molecule of claim 14, wherein the polynucleotide comprises a nucleotide sequence encoding a human G-protein coupled receptor protein.

16. A recombinant vector comprising the isolated nucleic acid molecule of claim 14.

17. A recombinant host cell comprising the recombinant vector of claim 16.

15 18. An isolated polypeptide consisting of an amino acid sequence selected from the group consisting of:

- (a) a polypeptide fragment of SEQ ID NO:2 having G-protein coupled receptor activity;  
(b) a polypeptide domain of SEQ ID NO:2 having G-protein coupled receptor activity;  
(c) a full length protein of SEQ ID NO:2;  
(d) a polypeptide corresponding to amino acids 2 to 342 of SEQ ID NO:2, wherein said amino acids 2 to 342 comprise a polypeptide of SEQ ID NO:2 minus the start methionine;

25 (e) a polypeptide corresponding to amino acids 1 to 342 of SEQ ID NO:2; and

(f) a polypeptide encoded by the cDNA contained in ATCC Deposit No. PTA-3161.

19. The method for preventing, treating, or ameliorating a medical condition of claim 17, wherein the medical condition is an inflammatory disorder; an inflammatory disease wherein G-protein coupled receptors, either directly or indirectly, are involved in disease progression; a reproductive disorder; a pulmonary

disorder; a cancer; renal disorder; a connective tissue disorder; an endocrine disorder; a disorder involving aberrations in tubular tissues, such as, for example, fallopian tubes, vas deferans, ureters, kidney, ductal tissues, lymphatic vessels, and blood vessels.

5        20. A cell comprising the polypeptide of claim 5 and a member selected from the group consisting of NFAT/CRE, and NFAT G alpha 15.

21. A method of screening for candidate compounds capable of modulating activity of a G-protein coupled receptor-encoding polypeptide, comprising:

- 10            (a) contacting a test compound with the cell according to claim 20; and  
                  (b) selecting as candidate modulating compounds those test compounds that modulate activity of the G-protein coupled receptor polypeptide.